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Biology Topic 7 AQA Exam Questions: Ecology and the Environment

Exam Questions/Mock Exam Questions

Questions For Foundation, Higher, and Triple Science (scroll down for questions for higher and triple science only):
(It would still be recommended to answer the foundation tier questions for triple science and higher tier to ensure you have good understanding).

Q1. Organisms live in habitats where they are adapted to survive.

(a) What is a habitat?

_____

(1)

(b) Give one example of how a cactus is adapted to living in a desert.

_____

_____

(2)

[Total: 3 marks]

Q2. Ecosystems contain many species.

(a) What is meant by the term 'species'?

_____

(1)

(b) What could happen if a species becomes extinct in an ecosystem?

_____

_____

(2)

[Total: 3 marks]

Q3. Competition happens in ecosystems.

(a) Name two resources animals compete for.

_____

_____

(2)

[Total: 2 marks]

Q4. Interdependence is important in ecosystems.

(a) Explain what is meant by interdependence.

_____

_____

(2)

(b) Give an example of interdependence in a woodland ecosystem.

_____

_____

(2)

[Total: 4 marks]

Q5. Abiotic factors can affect ecosystems.

(a) What is meant by an abiotic factor?

_____

(1)

(b) Name one abiotic factor that affects plant growth.

_____

(1)

[Total: 2 marks]

Q6. Biotic factors include living things.

(a) Give one example of a biotic factor.

_____

(1)

(b) Explain how a decrease in prey could affect a predator population.

_____

_____

(2)

[Total: 3 marks]

Q7. Quadrat sampling helps measure plant populations.

(a) What is a quadrat used for?

_____

(1)

(b) Why should quadrats be placed randomly?

_____

_____

(2)

[Total: 3 marks]

Q8. Transects can also be used to collect data.

(a) What is a transect?

_____

(1)

(b) Suggest what equipment you would use when working along a transect.

_____

_____

(2)

[Total: 3 marks]

Q9. Energy is transferred through food chains.

(a) Draw a simple food chain with three organisms.

_____

_____

(2)

[Total: 2 marks]

Q10. Biomass decreases along a food chain.

(a) What is meant by biomass?

_____

(1)

(b) Give one reason why biomass is lost at each stage of a food chain.

_____

_____

(2)

[Total: 3 marks]

Q11. The carbon cycle returns carbon to the atmosphere. (a) Name one process that releases carbon dioxide into the air.

(1)

(b) Describe one way plants take in carbon.

(2)

[Total: 3 marks]

Q12. The water cycle is vital for life on Earth.

(a) State one process in the water cycle.

(1)

(b) Explain how water from the sea reaches the clouds.

(2)

[Total: 3 marks]

Q13. Humans can affect ecosystems.

(a) Give one example of how humans reduce biodiversity.

(1)

(b) Suggest one way we can increase biodiversity.

_____

(1)

[Total: 2 marks]

Q14. Deforestation has environmental impacts.

(a) State one negative effect of deforestation.

_____

(1)

(b) Explain how deforestation contributes to global warming.

_____

_____

(2)

[Total: 3 marks]

Q15. Global warming is a growing issue.

(a) Name one greenhouse gas.

_____

(1)

(b) Describe one consequence of global warming.

_____

_____

(2)

[Total: 3 marks]

Q16. Conservation is important for biodiversity.

(a) What is biodiversity?

_____

(1)

(b) Give one method used to conserve endangered species.

_____

(1)

[Total: 2 marks]

Q17. Waste from human activity can damage ecosystems.

(a) Name one type of pollution caused by humans.

_____

(1)

(b) Describe one effect of land pollution.

_____

_____

(2)

[Total: 3 marks]

Q18. Indicator species can be used to monitor pollution.

(a) Name one organism used as an indicator of air pollution.

_____

(1)

(b) Why are these organisms useful as indicators?

(2)

[Total: 3 marks]

Q19. Recycling helps reduce the impact of humans. (a) Give one material that is commonly recycled.

(1)

(b) State one reason why recycling is important.

(2)

[Total: 3 marks]

Q20. Decay recycles materials in ecosystems. (a) What conditions help decay happen faster?

(2)

(b) Name one group of organisms that cause decay.

(1)

[Total: 3 marks]

Higher Tier

Q21. A student investigated the population of daisies in a school field.

(a) Describe how the student could use a quadrat to collect valid data.

(3)

(b) Explain why it is important to place the quadrats randomly.

(2)

[Total: 5 marks]

Q22. A food web is shown below.

Grass → Rabbit → Fox
Grass → Grasshopper → Frog → Snake

(a) Identify one producer in the food web.

(1)

(b) What would happen to the population of frogs if the grasshoppers decreased? Explain your answer.

(3)

[Total: 4 marks]

Q23. Describe how the decay of plant material by microorganisms returns carbon to the atmosphere.

(3)

[Total: 3 marks]

Q24. Describe how changes in abiotic factors can affect the distribution of species in an ecosystem.

(3)

[Total: 3 marks]

Q25. In a stable community, explain why the numbers of predators and prey rise and fall in cycles.

(3)

[Total: 3 marks]

Q26. Give two reasons why it is important to maintain biodiversity.

(2)

[Total: 2 marks]

Q27. Describe how energy is lost between trophic levels in a food chain.

(3)

[Total: 3 marks]

Q28. Explain why biomass decreases at each stage in a food chain.

(3)

[Total: 3 marks]

Q29. Explain one negative effect of deforestation on biodiversity.

(3)

[Total: 3 marks]

Q30. The carbon cycle involves several processes. Describe the role of respiration and photosynthesis in the carbon cycle.

(3)

[Total: 3 marks]

Q31. Explain how microorganisms are involved in the cycling of materials in an ecosystem.

(3)

(b) Why is this cycling important for plant growth?

(2)

[Total: 5 marks]

Q32. Give two methods used by scientists to estimate population sizes.

(2)

[Total: 2 marks]

Q33. Describe how environmental changes can lead to the extinction of a species.

(3)

[Total: 3 marks]

Q34. Describe one method used to maintain biodiversity and explain how it helps.

(3)

[Total: 3 marks]

Q35. Evaluate the use of peat-free composts compared with traditional peat-based composts.

(4)

[Total: 4 marks]

Q36. Explain how increasing human population affects ecosystems.

(3)

[Total: 3 marks]

Q37. Farmers can use biological control to reduce pest populations.

(a) What is meant by biological control?

(1)

(b) Give one advantage and one disadvantage of biological control.
Advantage: _____
Disadvantage: _____

(2)
[Total: 3 marks]

Q38. Explain how land use for agriculture and buildings can reduce biodiversity.

(3)

[Total: 3 marks]

Q39. Describe the effects of plastic pollution in the oceans.

(3)

[Total: 3 marks]

Q40. Suggest how scientists monitor environmental changes in ecosystems.

(3)

[Total: 3 marks]

Q41. Scientists use mark-release-recapture to estimate animal populations.

(a) Describe the mark-release-recapture method.

(3)

(b) Give one assumption made when using this method.

(1)
[Total: 4 marks]

Q42. A conservation project reintroduces a species into a national park.

(a) Suggest two reasons why reintroducing a species may help the ecosystem.

(2)

(b) Give one risk of reintroducing a species to an ecosystem.

(2)

[Total: 4 marks]

Q43. Students investigate the effect of light intensity on plant distribution.

(a) Suggest how they could measure light intensity in the field.

(1)

(b) Explain why light intensity might affect plant growth.

(2)

(c) What sampling method should they use to estimate plant distribution?

_____

(1)

[Total: 4 marks]

Q44. Peat-free composts are recommended by environmental groups.

(a) Explain why peat-free composts are considered environmentally friendly.

_____

_____

(2)

(b) Describe one disadvantage of using peat-free compost.

(1)

[Total: 3 marks]

Q45. Methane is a greenhouse gas produced by cattle.

(a) Explain how increased methane levels contribute to climate change.

_____

_____

_____

(3)

(b) Suggest a farming method to reduce methane emissions.

_____

(1)

[Total: 4 marks]

Q46. A predator-prey cycle graph shows fluctuations in population.

(a) Explain why predator numbers fall after prey numbers decrease.

(2)

(b) Describe how prey numbers might recover.

(2)

[Total: 4 marks]

Q47. The nitrogen cycle recycles nutrients in ecosystems.

(a) Name one organism involved in nitrogen fixation.

(1)

(b) Explain the role of decomposers in the nitrogen cycle.

(2)

[Total: 3 marks]

Q48. Some insects mimic poisonous species to avoid predation.

(a) What is the term for this type of adaptation?

(1)

(b) Suggest how this adaptation increases survival.

(2)

[Total: 3 marks]

Q49. A school monitors the population of lichen on trees.

(a) Why are lichens used as indicators of air pollution?

(2)

(b) Suggest one factor other than pollution that could affect the lichen population.

(1)

[Total: 3 marks]

Q50. Mycorrhizal fungi grow on plant roots.

(a) Explain the mutualistic relationship between fungi and plant roots.

(3)

(b) How might this relationship help plants in nutrient-poor soils?

(2)

[Total: 5 marks]

Q51. Climate change affects animal distribution.

(a) Describe one way climate change might cause species migration.

(2)

(b) Give one consequence if species fail to migrate.

(1)

[Total: 3 marks]

Q52. The use of biological control affects ecosystems.

(a) What is meant by biological control?

(2)

(b) Suggest one risk of using biological control.

(1)

[Total: 3 marks]

Q53. Genetic diversity is important in conservation.

(a) Explain why maintaining genetic diversity is important for a species' survival.

(3)

(b) Suggest one way zoos can help conserve genetic diversity.

(1)

[Total: 4 marks]

Q54. A group of students investigate the carbon dioxide levels in the atmosphere. (a) Give one natural and one human activity that increases carbon dioxide levels.

(2)

(b) Suggest one method to reduce carbon dioxide emissions.

(1)

[Total: 3 marks]

Q55. Scientists use models to predict environmental changes.

(a) State one limitation of using models in ecological predictions.

(1)

(b) Suggest one reason why models are still useful.

(2)

[Total: 3 marks]